

What is claimed is:

1. A method for plasma treatment, comprising the steps of:

5 (a) arranging a substrate in a chamber, wherein the substrate includes an SiC layer and an SiO₂ layer; and

(b) introducing an etching gas into the chamber and converting the etching gas into plasma to etch selectively the SiC layer against the SiO₂ layer, wherein the etching
10 gas includes CHF₃.

2. The method of claim 1, wherein the SiO₂ layer is a mask layer on the SiC layer, and wherein the mask layer has an opening pattern.

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3. The method of claim 1, wherein the SiO₂ layer is a base layer of the SiC layer.

4. The method of claim 1, wherein the etching gas
20 includes a material having N.

5. The method of claim 4, wherein the material having N is N₂.

25 6. The method of claim 5, wherein a ratio of CHF₃ flow rate to N₂ flow rate in the etching gas is between about 0.2

and about 0.6.

7. The method of claim 5, wherein a ratio of CHF₃ flow rate with respect to N₂ flow rate in the etching gas is
5 between about 0.4 and about 0.6.

8. A method for plasma treatment, comprising the steps of:

(a) arranging a substrate in a chamber, wherein the
10 substrate includes an SiC layer; and

(b) introducing an etching gas having CHF₃ and N₂ into the chamber and converting the etching gas into plasma to etch the SiC layer.

15 9. The method of claim 8, wherein a ratio of CHF₃ flow rate with respect to N₂ flow rate in the etching gas is between about 0.2 and about 0.8.

10. The method of claim 8, wherein a ratio of CHF₃ flow
20 rate with respect to N₂ flow rate in the etching gas is between about 0.4 and about 0.8.

11. The method of claim 8, wherein a ratio of CHF₃ flow rate with respect to N₂ flow rate in the etching gas is
25 between about 0.4 and about 0.6.

12. The method of claim 8, wherein the substrate includes an organic layer and the SiC layer is etched selectively against the organic layer.

5 13. The method of claim 12, wherein the organic layer is a mask layer of the SiC layer and the mask layer has an opening pattern.

10 14. The method of claim 12, wherein the organic layer is a base layer of the SiC layer.

15 15. The method of claim 12, wherein a ratio of CHF₃ flow rate with respect to N₂ flow rate in the etching gas is between about 0.2 and about 0.8.

16. The method of claim 12, wherein a ratio of CHF₃ flow rate with respect to N₂ flow rate in the etching gas is between about 0.4 and about 0.6.

20 17. The method of claim 12, wherein the organic layer is a dielectric layer with a lower dielectric constant.

18. A method for plasma treatment, comprising the steps of:

25 (a) arranging a substrate in a chamber, wherein the substrate includes an SiC layer; and

(b) introducing an etching gas into the chamber and converting the etching gas into plasma to etch the SiC layer, wherein the etching gas includes a material having C, H and F and a material having N, the etching gas being essentially
5 free from any material having O.

19. The method of claim 18, wherein the material having C, H and F is CHF_3 .

10 20. The method of claim 18, wherein the material having N is N_2 .

21. The method of claim 18, wherein the substrate includes an organic layer and the SiC layer is etched selectively
15 against the organic layer.

22. The method of claim 21, wherein the material having C, H and F is CHF_3 .

20 23. The method of claim 21, wherein the material having N is N_2 .

24. The method of claim 21, wherein the organic layer is a dielectric layer with a lower dielectric constant.

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25. The method of claim 18, wherein the substrate includes

a SiO_2 layer and the SiC layer is etched selectively against the SiO_2 layer.

26. The method of claim 25, wherein the material having C,
5 H and F is CHF_3 .

27. The method of claim 25, wherein the material having N
is N_2 .

10 28. The method of claim 18, wherein a base layer of the SiC layer is a Cu layer.